Colonel Walton describes this species as very common up to 15,200 ft. in all the country visited and remarks on the large size of his specimens, one of which, a male, has a wing of 350 mm.

Biddulph, as quoted by Sharpe, says: "I think I saw this and the Alpine Chough up to the greatest heights ascended—say, nearly 20,000 ft."

[Generally distributed. Nest found with half-grown fledglings at Tinki Dzong, 16 June. Several visited our camp at 20,000 ft., on Mt. Everest in September.—A. F. R. W.]

Podoces humilis Hume.

144 ♂ 18.6.21 Chus La 13,500 ft.; 168 ♂ 26.6.21, 169 ♀ 28.6.21, 192 ♀ 4.7.21 Tingri 14,000 ft.

This Ground-Chough was described by Hume from specimens obtained by Dr. George Henderson on the Sanju Pass during the first Yarkand Mission.

At Khamba Dzong, 15,200 ft., and various places on the way to Lhasa, Colonel Walton found the Brown Ground-Chough not uncommon, but confined to bare and uncultivated land. Though this bird has been noticed within a mile of the Kangra Lama Pass, on the frontier between Sikkim and Tibet, it has not been recorded within the limits of the former country.

Colonel Steen, I.M.S., found several nests near Gyantse, the eggs from which he sent to Dresser.

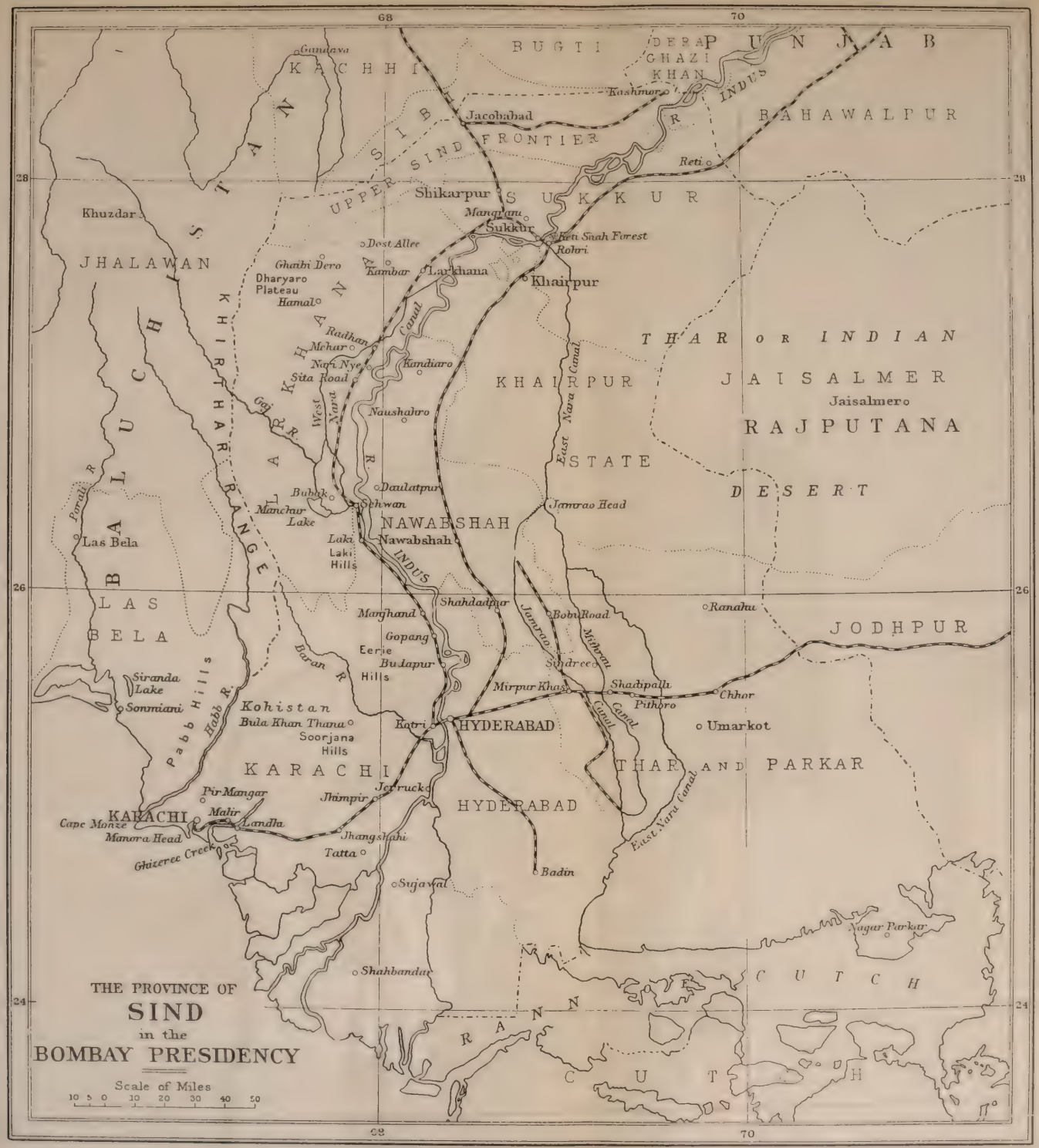
[Generally distributed. Nests found in holes in the ground or old mud-walls. Young birds on 18 June and later.—A. F. R. W.]

XXX.—*The Birds of Sind.* (Part i.)

By Claud B. Ticehurst, M.D., M.A., M.B.O.U., late Capt. R.A.M.C.

(Plate VIII.)

From 19 October, 1917, to 14 January, 1920, I was stationed at Karachi, the City of the Desert, and the port and capital of Sind. My spare time was devoted to ornithology. At first I intended to write merely a local avifauna of the



THE PROVINCE OF
SIND
in the
BOMBAY PRESIDENCY

Scale of Miles
10 5 0 10 20 30 40 50

district, but as my stay lengthened and I became well acquainted with what had been written on Sind and personally visited other parts of the province, I decided it was a pity not to bring up to date all that is known about this interesting part of India, especially as it may again be many years before anyone interested in birds is stationed there. I myself prepared over 1500 specimens, and I have since seen most of those in the British Museum. My thanks are due to Mr. Culbertson (Karachi Port Trust), Mr. Casement (N.W. Railway), Mr. McCullock (Indian Police), Mr. Gordon (Canal Engineer), Mr. Ludlow (Educ. Dept.), and especially to Mr. T. R. Bell (Forest Dept.), who kindly handed me over all his Sind notes, for help in various ways, and to Mr. N. B. Kinnear for much help and advice.

Historical.—Sir A. Burnes, who toured through Sind in 1830, enumerated 191 species. In March 1839, Dr. William Griffith, who was an assistant Surgeon in the H.E.I. Co. Service and a botanist, in marching from Bahawalpur to Quetta halted a month at Shikarpore, where he collected a few birds, now in the British Museum, including one or two types. In 1854–5, Dr. Gould, son of John Gould, made a small collection, now in the British Museum. But it is to Hume that we owe most of our knowledge of the avifauna ; in 1872 he made with Dr. Francis Day a cold weather tour of three months, mostly in Upper Sind and Karachi, and published an excellent account in 'Stray Feathers' (i. pp. 91–289). Also in the 'seventies Mr. S. B. Doig (Engineer E. Narra Canal) enthusiastically worked his district, paying particular attention to the breeding species ; and at the same time the late Col. E. A. Butler was stationed for some years at Hyderabad and Karachi, and both contributed papers of value to 'Stray Feathers.' In 1878, Mr. W. E. Brooks made a cold weather visit to Upper Sind, chiefly working the Sukkur and Sehwan districts ; also in the 'seventies Blanford made several visits, surveying in the hills, Thar and Parkar, and the lower Beluchi boundary. The ornithological results of these trips were never fully published, but his specimens are in the British and Indian

Museums. Others who contributed notes in a lesser degree about this time to 'Stray Feathers' were H. E. Barnes, J. A. Murray, Col. Le Messurier, and Sir Evan James. Murray, who was for some time Curator at Karachi Museum, seemed to have done very little personally in investigating the ornithology of the province, but he wrote in 1884 the 'Vertebrate Zoology of Sind,' which as regards birds contains very little information about Sind in it. Barnes, who wrote the 'Birds of the Bombay Presidency,' added nothing in this work to what was already known about Sind, while Butler's 'Catalogue of the Birds of Sind,' etc., is only a bare list brought up to the date it was written (1879). Since 1880 practically nothing except a few odd notes in the Journal of the Bombay N. H. Soc. has appeared, but in 1907 an abbreviated list by E. H. Aitken was incorporated in the Sind 'Gazetteer.' From this work I have abstracted most of the information here given on the physical features. For fuller detail reference should be made to it.

Physical Features.—Sind has an area of 53,000 sq. miles, and is the most western province of India proper. Except for the Khirthar Range and its outliers, which runs from north to south along its western border, Sind is entirely plain, most of it being recent alluvium from the Indus, or sandy desert in those parts where the influence of the river has never been felt. Cultivation is for the most part found in the Indus valley and canal areas, but small amounts may be seen anywhere where rain-water can be dammed up or where wells sunk by river-beds can supply a sufficiency. These "rivers," of which there are many, are dry except for a short time after heavy rain, but their beds usually contain water deep down. The only stream of perennial water besides the Indus is the Habb River, while there are several hill torrents which, never quite dry, have trickles and pools, such as the Gaj, Narri Nai, Barun, etc. The rainfall is the smallest in India, and only averages 4 to 6 inches annually (mostly a few days in July or August), but sometimes no rain at all falls for two or even three years.

The mountains of the Khirthar run up to 4–5000 ft., the highest peak being Dharyaro, about 6000 ft. They are of Tertiary formation, mostly nummulitic limestone, but at Laki, Cretaceous rocks are exposed; however, some of the lower slopes and various valleys, such as the Habb and Barun, are sandstone. The only formation different from the main hills are the low hills in Naggar Parkar in the extreme south-east, which are granitic rocks of the Aravalli Range belonging to the Archæan system.

But for the numerous canals supplied by the Indus, the whole would be the dreary desert which the rest of Sind outside the canal area is; the canal influence is felt for a breadth of country running more or less parallel with the Indus from Kashmor to the mouth, covering a width of about 50 miles. These canals, most of which have been made since 1859, must have profoundly influenced the original avifauna of the province. Thus the East Narra Canal (1859) with its branches Mithrao (1879) and Jamrao (1899) brings into cultivation about half a million acres of what would otherwise be desert; its course is roughly that of the "lost river of Sind"—the Hakro. As two-thirds of the Narra water now flows down the Jamrao Canal, the conditions of the country and status of some birds in its lower reach may well be altered from what it was in Doig's day.

In extraordinary contrast to the desert portion, Sind contains a vast number of fresh-water lakes or jheels known as "dhands." After heavy monsoons, huge areas are inundated; while many pools exist for a few weeks only; many "dhands," gradually shrinking in size, exist almost till the next hot weather; others, again, are formed by canal overflows, and some of these are practically perennial lakes, many of them surrounded by tamarisk, reeds, rushes, etc., making a veritable paradise for aquatic birds, notably the great Manchar Lake, the largest fresh-water lake in India.

The climate is dry and the temperature averages high. In the hot weather, April–October, most of Sind is well-nigh unbearably hot; at Shikarpore, for instance, for weeks the temperature at night never falls below 100° F., and the shade

temperature often reaches in Upper Sind 115–120° or more (highest 132°); in the south-west corner, however, the hot weather is not so bad, the shade temperature being about 90° with strong sea breezes; in the cold weather this part is pleasantly cool at 80°, whereas in Upper Sind it is quite cold, and ground frosts at night are known.

Vegetation.—In the Indus valley and canal areas vegetation abounds, and in places is luxuriant. The trees consist chiefly of the acacias "babul" (*Acacia arabica*) and "kandi" (*Prosopis spicigera*), tamarisk "lái" (*T. gallica*), interspersed with "siras" (*Albizzia labbek*), "nim" (*Melia azadaracta*), "pipal" (*Ficus religiosa*), etc., while in Upper Sind the white poplar "bahn" (*P. euphratica*) flourishes. The 87 forest areas (much of it hardly what we should call forest in Europe) comprise six million acres, and vary from one-quarter to two miles in width and up to 10,000 acres in size; some are really dense, others mere jungle; interspersed and in places making a forest of its own are the giant grasses "sar" and "khan" (*Saccharum*), which determine the distribution of not a few birds. Cultivation consists of cotton, wheat, barley, maize, millet, etc., in places rice, and many kinds of garden vegetables, while groves of guava, mango, and papeira are commonly seen.

The rest of Sind is in great contrast—the most dreary waterless desert and vegetation scanty. The euphorbia ("cactus" of the English) is the prevailing bush; on sand-dunes the "uk" (*Calotropis*) alone is seen, on rocky ground the "ber" (*Zizyphus jujuba*), and in many places the leafless caper "kirar" (*Caparis aphylla*) or the jhao (*Tamarix dioica*) alone relieve the monotony, save on the banks of some dry water-course, where a desert scrub-jungle of these bushes with the two acacias affords more or less thin cover. However, after the monsoon rain even the desert is transformed in places, and for a few short weeks many plants and grasses, the existence of which would never be suspected, spring up luxuriantly, and the bushes, nibbled down by goats and camels to a few bare stalks, shoot forth again to a respectable size.

The hills of Sind have their peculiar trees, and here the wild olive (*Olea ferruginea*), dwarf palm (*Nannorhops ritcheana*) and *Grewia* are found, while after rain, grasses and other plants make up a somewhat scanty vegetation. Possibly in nullahs where there is water more trees and jungle may exist, as some cultivation certainly does.

Along the whole sea-board with its innumerable creeks and mudflats the mangroves (*Rhyzophora micronotata* and *Avicennia officinalis*) "kámo" form considerable salt-water forests, while the salt-impregnated desert supports plants such as *Sueda*, *Salsola*, etc.

Migration.—There are two distinct migration routes in Sind; one of these is the eastern fringe of the route by which migrants from Afghanistan, North-west Frontier Province, and countries farther north pass to their winter quarters in perhaps Arabia and Africa. By this route must travel those species which, breeding in these northern parts, pass though Sind but do not winter in India; such are *Agrobates g. familiaris*, *Caprimulgus e. unwini*, *Coracias g. semenowi*, *Lanius collurio*, *L. m. assimilis*, *L. c. phœnicuroides*, *Merops apiaster*, *Monticola saxatilis*, *Muscicapa s. neumanni*, *Oriolus g. galbula*, and *Sylvia c. icterops*. This, too, is the route which *Glareola pratincola*, *Merops persicus*, *Cuculus canorus*, and birds which partially winter in Sind, such as *Upupa epops*, *Numenius phæopus* (and probably other Waders) take. For some reason which I am unable to explain, a number of these species do not come under observation on spring passage.

The second route is one from farther south in India to the northern breeding-grounds and *vice versa*, and is simply the western wing, in India, of the vast S. to N. and N. to S. movement by which the winter visitors to India depart and arrive; and apart from the winter visitors to Sind, the most conspicuous passage migrants on this route are *Motacilla f. beema* and *M. f. melanogrisea*, *Muscicapa p. parva*, *Phylloscopus n. nitidus*, and some Waders. By this route, too come the "rain visitors" to Sind, e.g. *Coccystes jacobinus* *Sarciophorus malabaricus*, *Coturnix coromandelicus*, etc.

a distinct offshoot from this main movement is one which has a more westerly trend, taking some species which winter in India to Persia, and by it travel *Emberiza melanocephala* and *huttoni*, *Œnanthe x. chrysopyga*, *Pastor roseus*, *Pterocles orientalis* and *alchata*, and possible others.

Besides these well-marked migrations there are local movements depending on the degree of cold in Upper Sind, and perhaps the Punjab, which moves down such species as *Coracias benghalensis*, *Cinnyris asiatica*, *Merops orientalis*, *Hirundo filifera*, while other local movements depend on presence or absence of water.

Avifauna.—Sind ornithologically is the western limit of the Indo-Malayan or Oriental region, and most of its breeding birds belong to this area; it, however, contains a sprinkling of true Palæarctic species, such as *Sturnus vulgaris*, *Alæmon alaudipes*, *Ammomanes deserti*, *Hippolais rama*, *Acrocephalus stentoreus*, *Œnanthe alboniger*, *Scotocerca inquieta*, *Glareola pratincola*, *Charadrius alexandrinus*, *Cursorius gallicus*, *Ixobrychus minutus*, *Pterocles coronatus* and *senegallus*, *Ammoperdix griseogularis*, and *Coturnix coturnix*; while in some others which are common to both regions it is not the Indian but a Palæarctic race which is found in Sind, e.g. *Halcyon s. smyrnensis*, *Columba livia neglecta*, *Neophron p. percnopterus*, *Cinnyris a. brevirostris*. So, too, the proximity to the Palæarctic area is borne upon one in viewing those passage migrants which I have described as taking the Arabian route, and which pass through this province almost alone of all India, while a fair number of Palæarctic winter visitors are only, or almost only, found in Sind.

Where then is the Palæarctic boundary? In reality there is none in the sense that there is a barrier beyond which no Palæarctic species go east and no Indian ones go west; the two areas tail off into each other over a considerable area from south-east Persia to Sind. Yet the Khirthar and part of the Mekran coast ranges do, together with lack of suitable "forest-jheel country" west of the Indus valley, undoubtedly limit the progress west of a number of Indian species. The

subject is a very interesting one and too long to go into here in detail; I hope to deal with this question more fully on another occasion. Suffice it to say that I have been unable to trace the following birds westward of the Sind boundary:—

Acridotheres ginginianus.
*Anastomus oscitans.
*Anas pœcilorhyncha.
*Anhinga melanogaster.
Anthus rufulus.
*Ardetta cinnamomea.
* „ flavicollis.
*Argya earlii.
†Bubo bengalensis.
„ coromanda.
†Brachypternus bengalensis.
†Butorides javanicus.
*Centropus sinensis.
*Dendrocygna fulva.
Eudynamis scolopaceus.
*Eupodotis edwardsi.
*Hydrophasianus chirurgus.
*Gallicrex cinerea.
*Inocotus papillosus.
*Laticilla burnesi.
*Liopicus mahrattensis.
Orthotomus sutorius.
Œnopopelia tranquebarica.
Palæornis nipalensis.
Pericrocotus peregrinus.
†Phalacrocorax javanicus.
† „ fuscicollis.
†Ploceus phillipinus.
„ manyar.
„ bengalensis.
*Prinia flaviventris.
Pycnonotus hæmorrhous.
†Pseudotantalus leucocephalus.
*Pyctorhis altirostris.
* „ sinensis.
*Riparia chinensis.
Ripidura albifrontata.
*Saxicola leucura.
* „ macrorhyncha.
Sporæginthus amandava.
*Sterna melanogaster.
* „ seena.
*Sturnus minor.
Temeneuchus pagodarum.
Tephrodornis pondicerianus.
*Xantholæma hæmacephala.
†Xenorhynchus asiaticus.
†Zosterops palpebrosa.

* Not found W. of Indus valley.
Some others extend to Las Belas; those marked † may also.

Though in many cases the race found in Sind is not that found over most of the rest of India, yet there are very few peculiar to Sind, such only, perhaps, are *Pyctorhis altirostris scindicus*, *Sturnus vulgaris minor*, *Sterna albifrons saundersi*?, others being the "dry area" form found over north-west India generally.

Measurements are given in mm.: wings—greatest possible length from carpal joint: tails from tip of uropygial gland: bills from true base except where otherwise stated.

Corvus corax laurencei Hume. "Dodar Kahn."

The Indian Raven has rather a curious distribution in Sind; to Upper Sind, for example at Jacobabad, it is a very common winter visitor, to Lower Sind a very rare one; Hume records it from Hyderabad, and I only met with it once—in the cultivation below the pass into the Soorjana. In the Khirthar range it is presumably more or less resident; here Day met with it in January, and I have seen eggs taken from near Jacobabad, presumably from the hills. It seems probable that those birds which reach the plains in winter have come from the adjoining hills or possibly from Beluchistan, where the bird breeds at the end of March. It is curious that it apparently does not breed in the plains of Upper Sind, where conditions are not very different to those in the Lower Punjab and where it breeds freely. In Thar and Parkar district, however, Blanford found it common everywhere in the cold weather, and obtained one at Ghotaru on the Jeysalmer side of the Sind boundary as late as 24 March, so perhaps it is resident there.

Soon after its arrival and just before its departure from Jacobabad, Hume was informed that great numbers die, and this was attributed to the heat and the diet of putrid fish. The Sind eggs measure 50 × 35 mm.

Corvus corax ruficollis Less.

The status of the Brown-necked Raven is somewhat uncertain. Probably it is a resident in the Khirthar, coming into the plains in Upper Sind in winter. There are but few records; Murray secured one from his collector at Jacobabad in February 1878, and this or another (Butler coll.) with the same data is in the British Museum, where there is also another from Phooloo Bunder, near Larkhana, obtained in January 1878 by Sir Evan James; while another from this district was in the Swinhoe collection. Both Ravens seem to occur round these districts in winter. On the Beluchi side of the Khirthar and all through British Beluchistan it is common. In Lower Sind any Raven is rare, and then only found close to the hills; I never saw this bird myself.

I have examined these Sind birds in the British Museum and also the whole series there, and I see (Ibis, 1921, p. 624) that Col. Meinertzhagen has come to the same conclusion which I had formed that birds from Cape Verde Is., Egypt, Palestine, and eastwards to India are all identical. These two Sind birds measure (unsexed): wing 386, 403 ; bill 65, 61 mm. Birds in the first year have less decided coppery tinge and wings browner than adults. I leave this bird for the present as a race of *corax* in lack of absolute proof otherwise.

Corvus coronoides levaillanti Less.

The only records of this Crow in Sind refer to Blanford's statement (Phys. Geog. Great Indian Desert, J.A.S.B. 1876) that it is found about the cultivation in the Thar and Parkar district, and referring to this (S. F. vii. p. 527) he says: "I know *C. duvauceli* exists in Sind." Apparently it is confined to the eastern boundary, and presumably resident there.

Corvus splendens zugmayeri Laub. "Kan."

Throughout the length and breadth of Sind the House-Crow is excessively abundant, its numbers being in proportion to the number of human habitations ; so far as I know, it does not occur in the hills. At sunset these birds flock together to roost in trees, and where these are absent, as at Sukkur, they flight out into the nearest forest, to return again at sunrise, and nowhere have I seen such incredible numbers as in that town. Always noisy, their cawing in a roost goes on at intervals all night. In Karachi they were building by the last week in May (earliest eggs 2 June), but many have not finished building by mid-June ; the earliest young were out on 18 July. Any tree is selected, and a considerable number breed in the mangroves of Karachi Harbour, a place they inhabit more or less all the year, feeding on crabs, molluscs, etc. I have even found nests in a Vulture's roost! The nests, quite neat affairs, do not differ from those of this bird elsewhere. Five eggs is the full clutch, sometimes only four or even three.

There are always more Crows about than nests, and this is accounted for by the fact (which I have proved by dissection) that the birds one year old, with brownish wings and darker grey collar, do not breed, but are performing a complete moult during the breeding season of the adults. Possibly, however, some of these birds may breed late in the year after moulting, as I have seen building going on on 5 November and seen young just out on the 15th ; this might, however, be late efforts of adults, which as soon as their brood is flying start to moult. The average of 36 eggs is 36·81 × 26·3 : largest 45 × 26·5 and 36 × 28, smallest 33 × 26 and 35·5 × 25. Mr. Stuart Baker informs me that they are not distinguishable from the eggs of typical *splendens*. Nothing comes amiss to this scavenger, and I have seen them in the hot weather scouring the desert for locusts. Considering their abundance, variations are not common ; a pale dun-coloured one and a silvery white one came under notice.

The Sind race differs from the typical one in having a much paler collar and under parts (as Hume noted), pale smoke-grey in fresh feather, creamy grey or dirty white in worn dress. Wing 255–290 mm., as in *splendens*.

It is found throughout Sind, Las Belas, Sibi Plain, and S. Punjab.

Dendrocitta vagabunda pallida (Blyth). "Mata" or "Malang."

Hume called the Tree-Pie common almost everywhere in Sind, but it is, of course, only common in the afforested area of the Indus valley and canal regions. Outside this it may be met with in small numbers wherever sufficient large trees or high jungle occurs—and this is in few enough places. Thus I have seen it in jungle on the Barun River at the foot of the Soorjana Hills, and it probably occurs in the main range valleys where trees are sufficient. It is quite resident and breeds from the end of April up to June, and is very partial to "kandi" and "babool" forest. I have found it always rather a shy bird, and usually but a glimpse of it is caught as it flies ahead from tree to tree.

The determination of the Sind birds led me to examine all the Indian specimens—a fine series of over 150—in the British Museum, and it is evident that more than one race occurs. I divide them up as follows :—

1. Dendrocitta vagabunda vagabunda Lath. Index Orn. i. 1790, p. 171. Type-loc.: Calcutta.

Bengal, Assam, Bhutan, and Buxa Doars (wing 145–164); Nepal (148–155); Burma (Upper and Lower) (138–165); United Provinces, Central Provinces, and Bombay Pres. south of Narbada (142–160); Travancore and Nilgiris (135–152); Mysore and Madras (140–152); Siam? 147–150 (only very few adults thence).

These vary a good deal in the coloration of upper and under parts, but over its very wide range I cannot see that more than one form is present, but it is noticeable that the birds from southern India do not run quite as large as elsewhere, though many from the rest of the range of distribution are equally small.

Over 100 specimens examined. Wing 135–165 mm.

2. Dendrocitta vagabunda pallida (Blyth) J. A. S. B. xv. 1846, p. 30. Type-loc.: Simla.

N.W. Himalaya (Kumaon, Gharwal, Dehra Dun, Simla) (152–176), Sind, Rajputana, Punjab, and N.W. Frontier Prov. (152–170).

As Blyth states, these are "paler; back and scapulars isabelline with a tinge of dusky, but devoid of rufous tinge; rump paler, belly and lower tail-coverts pure isabelline or buff cream-colour." I cannot agree with him, however, that they are smaller; as shown in the above measurements they average considerably larger. Hume (S. F. i. p. 206) remarked on the superior size of the Sind birds, but also said they "are dark like the generality of Upper Indian birds." I cannot distinguish any difference between these north-west Indian birds and birds from Simla, etc., and nearly every one can be picked out at a glance from Bengal birds.

About 25 specimens examined. Wing 152–176 mm.

3. Dendrocitta vagabunda saturatior, Ticehurst, Bull. B. O. C. xlii. 1922, p. 56. Type-loc.: Kaukareik Mts.

Very distinct from both the above races are the birds from Kaukareik Mts. in the Amherst district of Lower Burma, whence there is a large series in the British Museum. All these birds can be picked out a glance, the upper parts being browner, more "saturated" in colour than the typical race. The contrast between the head, neck, and mantle colorations is almost lost. Mantle dark brown, not so orange-red. About 20 examined: wing 138–152. Birds from Amherst approach this race (the few I have seen), but so far as one can judge, *saturatior* is confined to Kaukareik Mts., by which I suppose are meant the Dawna Range. It is not apparently found on Mulyit Mt. (*vide* S. F. vi.). Bingham (S. F. ix. p. 191) notices a darker variety which he shot at Kaukareik, but says he shot an ordinarily coloured one in the same tree; however, all from this locality are the same, as exemplified by the birds in the British Museum. Bingham remarks on the diversity of forest in this neighbourhood—dry, moist, evergreen, and teak; and maybe this Tree-Pie is confined to one particular (moist?) kind of forest.

There is a specimen of *D. leucogaster* in the Karachi Museum labelled "Kotri." It is an ancient specimen and the locality must be incorrect. Needless to say, this south Indian bird has never occurred in Sind, nor ever likely to.

Hume satisfied himself that a Jay, apparently from description *Garrulus melanocephalus* Génè. (= *G. atricapillus*), occurs in the Khirthar range. In the Karachi Museum are two specimens labelled "*G. melanocephalus* Jacobabad." These old specimens (in worn breeding dress!) certainly never came from Sind at all, and were wrongly labelled as to locality and as to species, for they appear to me to be *G. lanceolatus*! No Jay is known in Kelat or in the juniper forests of Beluchistan, and I am certain no Jay can inhabit the Khirthar.

Remiz coronatus (Severtz.).

Mr. T. R. Bell informs me that he met with this Penduline Tit in the dense well-watered tamarisk-and acacia-jungle of Andaldal close to Ruk Junction in February 1904, and again at Raoti about the same time. He remarks that he saw several small parties hunting for insects among the leaves of the tamarisk, hanging and clinging to which they seem as much at home as other birds do on twigs and branches; the note is a low, short "tweet." One of his specimens is in the British Museum.

This is the first and only record for Sind; this Tit was first found in India at Kohat by Whitehead in 1905, and Mr. Whistler saw it at Jhelum in 1914. It evidently wanders occasionally, perhaps regularly, into parts of north-west India. The Grey Tit, common in Lower Punjab, is not recorded in Sind, nor is *Parus nuchalis*, which occurs in Cutch.

Argya earlii (Blyth). "Lelo."

Throughout the canal areas of the Indus valley the Striated Babbler is common in damp or wet places where "khan" and "kandi" jungle or tamarisk afford thick cover; as soon as one enters such habitats from desert, scrub-jungle, or cultivation, this species takes the place completely of *A. caudata*. Always found in small parties, this species is more noisy but more skulking than its desert ally, and is less often seen on the ground, though, according to Mr. Bell, it must seek its food largely on the ground in dense cover, as he found its food to consist of small snails and Melolonthid larvæ. Its note is distinctive and much louder than that of *caudata*, and attracts attention when, in the last of the gloaming, one after another, the individuals of a flock seek the thick tamarisks to roost in. The nesting season is given as from March to October by Doig and Barnes.

This species does not occur west of Jhangshahi (70 miles east of Karachi).

Examples from Sind and Punjab are quite inseparable

from those from Calcutta, whence came the type of the species.

Argya caudata caudata (Dum.). "Hero."

Throughout Sind the Common Babbler is one of the most numerous and well-known birds affecting all habitats except the hills, thickest forest, and swamp. It breeds from mid-March to October; Mr. Bell thinks that roosting nests are also made. The flocks do not seem to break up, even in the nesting seasons, which is somewhat curious as they are not colonial nesters; interference with the young will bring the whole flock round squeaking their protests, and the presence of any undesirable animal is in like manner given away.

Wings measure: ♂, 80·5–83·5; ♀, 77–82. Bills from base: ♂, 20–23; ♀, 18–22 mm.

Juveniles differ from adults in having whitish tips to the dark feathers of the crown and no buff edges, so that the appearance is "scaly" instead of streaked; under parts as in adult, but more ochraceous on the pectoral region and flanks. Some adults are more rufescent than others below, and such appears to be the *eclipses* of Hume. Juveniles undergo a complete moult and adults moult once a year—in autumn.

Argya caudata huttoni (Blyth).

There is in the British Museum an undoubted specimen of *huttoni*, obtained by Blanford in the "hills south of the Gaj River" on 1 January, 1877, elevation not stated. The distribution of these two races requires further examination, and a series from the Sind hills with the elevations they were obtained at is desirable. A bird also in the British Museum from the Nari Nai is undoubtedly typical *caudata*, but may have quite well been obtained in the plains. I may here also note that I have examined a bird of the typical race from Kain in north-west Persia, a very unexpected locality.

This Sind specimen measures:— ♀. Wing 85·5; bill 21·5 from base.

[**Argya malcomi** (Sykes).

Like several other birds—*Caprimulgus asiaticus, Graucalus macei*, etc.—this Babbler is only recorded from Sehwan and only by Murray, and I would omit it altogether were it not that in the Bombay Nat. Hist. Soc. Journal there is mentioned one also from Sehwan presented to the Society by Swinhoe. It seems hardly credible that an isolated "colony" exists at Sehwan, which locality does not offer any marked contrast in terrain to many other places in the Indus and canal areas (where no one else has met with it), and which is separated by the breadth of Sind and miles of desert from its nearest known habitat. Murray's bird is still in the Karachi Museum and labelled "Sehwan," but his labels were not always correct. I leave the problem for future investigators.]

Turdoides terricolor sindianus (Ticeh.). "Sátbhái."

The Jungle-Babbler is very common throughout Sind wherever sufficient trees are found; in some of the forests along the Indus it swarms, and elsewhere it is found in proportion to the number of trees: in scrub-jungle I never met with it. It is a resident, of course, and starts breeding at the end of March; Mr. Bell records four fresh eggs on the 31st, and he says that high up in a leafy "babool" is a favourite site, and he also noted a nest in a pollarded bough of poplar twelve feet from the ground. I have found young on the wing by the end of April, noted birds sitting on 30 June, and found fresh eggs on 5 July, so that the breeding season is a long one and more than one brood is reared. Such nests as I have seen were always a fair height from the ground and as often as not towards the end of a horizontal bough of "babool," or else high up in thick milky euphorbia hedges (*E. tirucalli*); all were similar in structure—rather loose-made deepish cups, composed of coarse grass and lined with rootlets.

In the Bull. B. O. C. xl. 1920, p. 156, I separated the Sind bird by its general paler coloration; it extends to

Mt. Aboo and the Punjab. Wings, ♂ ♀, 104–110 mm.; bill 23–24. Iris white to pale straw; legs and feet dull yellow; bill yellow in the breeding season, horn-coloured in winter. The juvenile performs a complete moult, and the first primary in this plumage is much more rounded, not so pointed as that in the adult.

Pyctorhis sinensis hypoleucus (Frank.).

In the same area and in very much the same habitat as that frequented by the Striated Babbler, the White-eyed Babbler may be commonly met with. Usually seen in small parties, they are in habits typical Babblers and, though rather skulky, are very noisy; glimpses of them may be had as each one of the flock works its way through a dense tamarisk clump, comes to the topmost twig, and for a few seconds suns itself, perhaps giving forth a few notes of its pleasing little song ere it dives in again to resume its hunt for insects. In life the iris is buff, changing to yellowish after death.

According to Mr. Bell, it breeds at the end of April and beginning of May; Doig thought it also bred in July and August. Barnes, who examined many nests in Sind, says the eggs are always of one type—a delicate pinkish-white ground, thickly freckled with specks of brick-red.

A bird of such wide distribution—China to Sind—is very likely to show geographical variations, and in determining my Sind birds, I examined the enormous series in the British Museum. I can distinguish the following races :—

(i.) Pyctorhis sinensis sinensis (Gm.) Syst. Nat. i. 1789, p. 1012: China.

China (Canton); S. and W. Yunnan, Siam, S. Shan States, Burma, Assam, Bengal; to this race I am inclined to assign birds from the Central Provinces and Madras, and Belgaum district; where exactly this race meets the next in the Bombay Presidency is not clear, but birds from Khandeish northwards belong to the next race.

(ii.) Pyctorhis sinensis hypoleucus (Franklin) P. Z. S. 1831, p. 118. (Between Benares and Calcutta, and between the former and the Vindhya Mts.)

I restrict this to the United Provinces in order to avoid creating a new name, as it cannot be now determined where Franklin obtained his type.

Sind, Jodpur, Punjab to Umballa, Dera Ghazi Khan, N.W.F.P., United Provinces, Khandeish, Kathiawar.

Decidedly paler on the upper parts (a greyish rufescent tone) than *sinensis*.

(iii.) Pyctorhis sinensis saturatior Ticehurst, Bull. B. O. C. xlii. 1922, p. 57 : Bhutan Doars. Nepal, Sikkim, Bhutan and Buxa Doars.

As the name implies, this race is darker in colour everywhere on the upper parts than the typical form. In the British Museum are a fine series of these birds from Bhutan and Buxa Doars, and there are quite similar specimens from Nepal. There are, however, two skins of Hodgson's labelled "Nepal" in Gray's handwriting : Hodgson's original label is not attached to these birds, and they are quite unlike birds labelled "Nepal" by Hodgson and belong to the typical race ; it seems very probable that they were not collected in Nepal at all, but during one of Hodgson's excursions to the plains. *Pyctorhis longirostris* of Hodgson, given as a synonym of *sinensis* in the Cat. Birds Brit. Mus., does not apply to this race but to *Argya longirostris*—quite a distinct bird ; neither does *A. rufifrons* Hodgson, given by Blyth (Cat. Birds As. Soc. p. 150), apply.

(iv.) Pyctorhis sinensis nasalis Legge (Ann. Mag. N. H. (5) iii. 1879, p. 169 : Ceylon). Ceylon.

Timalia bicolor Lafr. (Mag. de Zool. 1835) was a new name for *hypoleucus*, and *T. horsfieldii* Jard. & Selby (Ill. Orn. pl. 119, 1831, Oct.) is not assignable to any locality, but the description is suggestive of the typical race.

Pyctorhis altirostris scindicus Harington.

Blanford obtained the only known specimen of this race at Mangrani between Sukkur and Shikarpore. I was always

on the look out for this Babbler, which, I believe, is an inhabitant of thick "khan" jungle, but I never came across it. It is probably very local and very skulking, and so easily missed. Moreover, in some years, at all events, this high grass-jungle is much cut and at times burnt, and so, unless one is resident in Upper Sind, the location of a suitable jungle is difficult. The single specimen seems distinct enough from the typical race.

Hypocolius ampelinus Bp.

The only record of the Grey Hypocolius from Sind and India is that of Blanford, who, when encamped at Mazarani Nai, due west of Larkhana, on 6 March, 1875, had a specimen brought in by his collector. It was obtained on a stony hillside amongst the lower hills of Khirthar. This bird must indeed have been a straggler, its nearest known habitat being Bushire and the head of the Persian Gulf.

Ægithina nigrolutea, which is common in Cutch, may well occur in extreme south-east Sind.

Pycnonotus leucotis leucotis (Gould). "Bulbul."

The White-eared Bulbul is a common and constant resident throughout Sind wherever there are gardens, cultivation, or trees, being equally numerous in gardens in towns as away out in the thicker jungle; in fact, it is only absent in quite bare tracts or mean scrub. It even occurs in the lower hills and euphorbia-jungle, unattractive though they seem. Its cheery note is one of the very few songs which enliven an otherwise songless land, and for this reason it is a general favourite and one of the few birds everyone knows. It is usually met with in pairs or perhaps family parties, but I once saw a scattered flock of about fifty individuals in a line of tamarisk at Lhandhi, near Karachi, attracted there by an abundance of a species of beetle. It occurs out to the Beluchi frontier.

In Hume's 'Nests and Eggs' it is stated that this Bulbul breeds in most places in July and August, but somewhat earlier in Sind. This is quite misleading, as I have seen eggs

taken on 25 March, and have found nests ready for eggs on 23 March and 16 April, and observed young on the wing by 17 April. Mr. Bell, too, records several nests with fresh eggs in the last days of March, so that one may safely say that this is the normal time for first layings. It must breed several times in the course of the year ; I have seen it feeding young on 24 June, and found a nest with two feathering young on 14 September, but I think that this late nesting only occurs in those years when rain has fallen, and when there is good cover in the way of fresh-leafed bushes and trees and hence a good food-supply in the shape of fruits and insects : this latter nest was in a flowering "kandi" bush in desert scrub, a bush which a few weeks previously was a stunted nibbled-down relic !

An interesting instance of hybridization with a Red-vented Bulbul is given under that species.

Five males : wing 81·5–84·5, tail 79–84, bill from base 16·5–17 mm. Females are smaller.

Pycnonotus hæmorrhous pallidus (Baker). "Thar Bulbul."

The Red-vented Bulbul is resident in the easternmost part of the province ; Blanford found it not uncommon in the Thar and Parkar district east of Umarkot, and Butler and Doig have recorded it as being common in the E. Narra at Sindree (the canal engineer's bungalow), where it breeds in rose bushes, etc., in July and August ; I have seen it in the same district at Chhor. The East Narra Canal seems to be the limit of its distribution westwards.

The only other place I have seen it is at Karachi ; here a pair or two frequent the Lyarree Gardens, always in the same spot, and Mr. Ludlow tells me he has seen a pair or two also in the Zoological Gardens ; all these Karachi birds I believe to be escapes or progeny of escapes. I frequently saw a Red-vented Bulbul about with a White-eared species during the cold weather of 1918, and in June 1919 they built a nest in the fork of a guava tree and hatched out two young, which I saw both the parents feed in turn. I took one of these hybrids and tried unsuccessfully to rear it.

It was darker underneath than the young of *leucotis*, and the under tail-coverts were ginger-coloured, more as in *hæmorrhous*, not yellow as in *leucotis*, while the white cheek-patch of the latter was indicated in a dusky-grey patch.

In years to come, maybe, some strange-looking Bulbuls will be found there as the result of hybridization. Hybrids between *leucogenys* and *intermedius* are known from Kohat (Ibis, 1909, p. 111), while *magrathi* from Bannu appears to me to be a hybrid between *intermedius* and *leucotis*, though the former is said not to occur at Bannu (see *t. c.* pp. 114, 303 and pl. v.).

Elsewhere in Sind there are no records of this bird, except that Murray states that he obtained one at Sehwan, but I think it quite likely that this also was an escape, as no one else has met with it in this district. It is common in Cutch and in Lower Punjab as far south at least as Multan, and might be found, one would think, at Kashmor on the north-east boundary of Sind, where, however, Hume did not come across it.

Sitta castaneiventris castaneiventris Frank.

Mr. T. R. Bell records that on 24 January, 1905, he obtained a single specimen of the Nuthatch in a "babool" groove in the Raoti Forest in Upper Sind. This is the first and only record in Sind, to which it must be a mere straggler. It does not inhabit the juniper forests of northern Beluchistan, nor was it found in the N.W. Frontier Prov. by Whitehead and is not known from Mt. Aboo. The nearest locality for it appears to be Dungarpur in the extreme south of Rajputana.

The Rock-Nuthutch (*S. n. tephronota*) is very likely to occur on the highest parts of the Khirthar as it occurs on the Beluchi side in Kelat and, of course, in Quetta.

Dicrurus macrocercus macrocercus Vieill. "Kalkanchi," *i. e.* black scissors (=*D. ater* auct.).

The Drongo is very common everywhere except in the hills and barest deserts, and even in the latter one may come across a few following a herd of goats, on the backs or heads of

which animals they will take up their perch. In the evening these Drongos flight in from the desert, flying high in twos and threes to their accustomed roost, at which time quite large flocks congregate on some bare tree or on any perch near the ground to partake of their last meal. Little insect-life comes amiss, and I have seen them successfully hawk dragonflies. Pugnacious at all times, in the breeding season I have seen one bully even a Pallas' Fish-Eagle!

The nest is usually of the slung Oriole-type, but I once saw one in a four-forked prong of a guava, which was quite round and cup-shaped.

Agrobates galactodes familiaris (Ménétr.).

The Grey-backed Warbler is a passage migrant through Sind, taking the "Arabian route" to reach its winter quarters; I only met with it, and that regularly, on autumn migration. The passage lasts but a short time—3 to 24 September, first and last dates,—and it may then be found usually singly in thin scrub-jungle out on the desert, haunting the small shady tracks which goats have made through the bushes; here, hopping about with tail erect searching for beetles, it is quite tame and quite unmistakable. Those I procured were always exceedingly fat.

It has been recorded in several places in north-west India on autumn passage, and I doubt the correctness of the statement that it is a cold weather visitor. The only record that I know of in the cold weather is that of Murray, who stated that he got one at Trainhee on the Manchar Lake on 30 November. Very likely Murray mixed up the dates (he was very careless in labelling), or possibly it was a delayed migrant (see note under Rock-Thrush).

Why the spring migration of this species should miss Sind is not clear, but several other species which take the same route, such as the Common Whitethroat, Spotted Flycatcher, Red-backed Shrike, etc., and which I observed at each autumn migration, never came under notice during spring passage. The statement that this bird breeds in the Multan district of the Punjab should, I think, be verified by breeding specimens.

Most Passerine passage migrants have fully moulted ere they leave Sind, but this bird is an exception, as several adults I obtained, though not in moult, had only partially moulted ; one had moulted its body- and tail-feathers but not its wings, another had only moulted part of its body-feathers. Two birds of the year have not moulted their juvenile tail-feathers.

Zarudny has described (J. f. O. 1911, p. 238) a race of this bird as *iranica* (Zagros Mts. and Beluchistan). As there are apparently no specimens in England from the Caucasus, the type-locality of *familiaris*, I am unable to determine whether Sind and Beluchistan birds differ in any way from typical specimens.

My series measure :— ♂. Wing 84–89·5, tail 64–67, bill 18–18·5. ♀. Wing 85–86·5, tail 63–65·5, bill 17·75–19·5.

The second primary is equal to the fourth or fifth, between these, or between the fifth and sixth.

Locustella nævia straminea Seeb.

I only met with the Turkestan Grasshopper-Warbler on the Manchar Lake ; on 10 March, 1919, and again in exactly the same spot on 27 December, 1919, I flushed two or three out of dense sedge and rush on damp ground on an island, and secured one on each occasion. They are exceedingly skulking birds and are not flushed till nearly trodden on, and after flying a short way dive into the thick cover and run with great rapidity. On the wing they look very pale and grey.

This Warbler, which has not been recorded in Sind before, was not unexpected, as it has occurred sporadically all over the plains of India ; it is probably a winter visitor. The March bird was performing a body moult.

Two males : wing 60, 61 ; tail 58–59. 2nd primary is between 4 and 5 or =5.

Acrocephalus stentoreus brunnescens (Jerd.).

In the more watery parts of Sind the Eastern Clamorous Reed-Warbler is very common ; everywhere on the inland

waters where reeds grow or, failing these, where tamarisks grow in water, this bird compels notice on account of its loud croaking note, even if the bird itself does not afford more than a glimpse. It is mostly a winter visitor, partly also a resident, and in the dry corner round Karachi it is a passage migrant. Dealing with the latter status first, passage migrants may be seen from the first week in September onwards, never very many, and at these times I have found them in quite dry situations, such as in tall acacias in cultivation or tall "jowari" crops ; they pass through again from mid-April, and the latest I have seen them is 2 May. Probably these passage periods correspond to the times of arrival and departure of the winter visitors elsewhere.

Doig (S. F. ix. p. 279) was the first to record that, at all events in the E. Narra District, this Reed-Warbler was resident and bred in August (see 'Nest & Eggs,' i. p. 225).

I see no reason why this bird should not breed in any swamp or jheel which has permanent water and reeds, such as at the Manchar Lake, but though constantly on the look out for old nests in the cold weather, I never came across one ; many places which in winter seem suitable breeding places are in August dry or only recently flooded. I could never make out whether this bird bred in the mangrove swamps of Karachi Harbour or not ; Mr. Bell states that he has heard its well-known note there during the months of July, August, and September, and he thought it doubtless bred there ; in another year he heard them in April and May, and searched the mangroves on 19 May for a nest, fruitlessly however. I have struggled through these mangrove forests at all times of the year, probably more than anyone, and the only indication I had of this bird's presence was on 17 and 18 July, 1918, when a single bird was undoubtedly singing there : on subsequent visits it was neither seen nor heard. It may be that it breeds there in some years and not others, or perhaps it used to breed there ; of recent years this forest has been much cut down for camel fodder. It is known to breed in the mangrove forests of the Mekran coast.

Acrocephalus dumetorum Blyth.

I did not find Blyth's Reed-Warbler at all a common bird, and its status seems uncertain; all that I obtained or identified were in spring from 29 March to 2 May. Butler records it in the cold weather and spring, while Blanford obtained it in autumn; probably it is a spring and autumn passage migrant, and some spend the winter in suitable places. This bird is a Reed-Warbler in name, but it has none of the habits of that group; it is almost invariably met with creeping about the higher boughs of a leafy "babool" tree nowhere near water, and its mode of living exactly resembles that of the Tree-Warblers.

Birds in March and April are undergoing a body moult only.

Acrocephalus agricola agricola (Jerd.).

The Paddy-field Warbler is a common winter visitor to Sind in suitable localities, and such places are any piece of water with tamarisk, sedges, reeds or grass of any height growing round and in the edge, sedge- and reed-covered swamps. It only seems to have these two requirements—the ground must be damp or wet, and cover must be thick. Elsewhere I never saw it. From the nature of its haunts it necessarily appears to be rather a skulker, yet where it does occur it is so numerous that it cannot be overlooked; I found it especially abundant on the Manchar and Jhangshahi Lakes. I have no date of its arrival, though I found it absent in suitable places on 15 September, so it probably comes later than that; and I have seen it still common on 31 March, so it leaves sometime in April. In the field the more rusty-brown less dark upper parts and absence of the clear white supercilium at once distinguish it from *Lusciniola melanopogon*, which inhabits the same spots.

Eight specimens (January to March); all belong to the typical race. Wings measure 56·6–60·5 mm.; the second primary lies in length between the sixth and seventh, or equals the sixth or seventh, and in two specimens between the seventh and eighth. Spring moult begins early in March.

Iris greyish brown ; legs and base of lower mandible flesh-coloured, rest of bill brown.

Orthotomus sutorius sutorius (Forst.).

The Tailor-bird is common in the better cultivated parts of the province; it is, of course, resident. In Karachi and other towns it is a garden bird, and few compounds with a sufficiency of thick evergreen bushes in them lacks its pair. Though a familiar bird, which may even nest in the pot-plants in the verandah, it is secretive in habits and is more often heard than seen, its rather discordant, strident note, very loud for so small a bird, being quite unmistakable. It breeds at the commencement of the hot weather.

The type-locality for this species is Calcutta, and on comparing Sind specimens with birds from this region, I cannot detect any difference between them, which fact is interesting though not surprising, as this species does not come under the influence of desert conditions, and its habitat in Sind does not differ remarkably from that of many places in India where it is found.

Lusciniola melanopogon mimica Mad.

A common winter visitor to the reed- and rush-covered "dhands." The earliest record of their appearance is 8 September, but I think the majority do not appear till October. When they leave Sind I do not know, but I still saw plenty on 10 March. Hume describes it as frequenting the "dhands" in the Larkhana District, such as Guibee Dehra, which are so thickly covered with dense rush as to appear to be one waving field of herbage. I have seen them in similar places, also in reed-beds, and round the edge of "dhands" where tamarisk and rushes intermingle growing in water. As a rule it is rather a skulking bird, and in some circumstances seldom shows itself where cover is very thick ; at times, however, I have found it tame and not at all inconspicuous. Such a time was on the Manchar Lake at Christmas 1919 : the lake was very full, and consequently the reeds neither very high nor thick; everywhere where there were any reeds at all, often a

mile from land, the Moustached Sedge-Warbler was simply swarming. When shooting Ducks on this lake, we took with us some tamarisk boughs to stick up in the reeds to supplement their scanty cover ; and on more than one occasion, as I was standing quietly in my "blind," one or more of these little Warblers, which were in numbers busily employed in the reeds a few yards from me, would hop up into the the tamarisk boughs to investigate within a few inches of me, keeping up all the while their curious scolding clucking.

I have no knowledge of their breeding in Sind, though some are said to do so near Quetta ; however, no one has visited these dhunds in hot weather.

All my birds are typical *mimica*. Two birds of the year were still moulting their wings and body plumage on 4 November. Early in February the spring body-moult begins. Legs olive-brown, bill brown, horn-flesh at the base of lower mandible.

Three males, wing 60–64 ; nine females, 60–63 mm.

Cisticola uncidis cursitans (Frank.).

The Fan-tailed Warbler is fairly common in Lower Sind wherever there are thick crops, such as cereals, lucerne, tall grass, and rushes round the drying edges of swamps and jheels. It appears to be less common in Central and Upper Sind ; it is a resident. The breeding season is a very long one ; Mr. Bell records it breeding in Upper Sind in February ; at Karachi, where I saw a good deal of it, I ascertained that it bred continuously from early April up to the end of October, on the 25th of which month I found a nest of young quilling. The stronghold of this species at Karachi is the coarse grass, grown in the Sewage Farm ; it was curious to see how these birds will find out a new breeding place. On the east side of Karachi there is a depression out in the desert which, after rain, fills up and quickly becomes full of rushes and sedges ; this spot in mid-August 1919 was bare desert (and had been so nearly two years) ; it filled on 26 August, and as soon as enough cover grew up, several pairs of *Cisticola* turned up and bred ; now,

the nearest habitat of these birds was a good three miles away, and to reach their new ground they must have crossed a considerable (for them) stretch of unsuitable country; this circumstance shows how readily even very sedentary birds wander at times. By the end of November this jheel was again bare desert, and the birds gone again of course.

My series measure :—♂, wing 50–54·5; tail, summer, 36·5–40; winter 41–47. This species performs a complete moult in May; the juvenile resembles the winter plumage, which is not like the summer as is stated in the 'Fauna of British India'; it is much more streaked with ochraceous, especially on the head, which in summer is pale brown. In the J. B. N. H. S. xxvii. p. 482, Mr. Stuart Baker has fixed the type-locality as Shillong; this bird was described by Franklin as *Prinia cursitans*, P. Z. S., Aug. 9th, 1831, p. 118, and this paper also appeared in the J. A. S. B. i. July 1831, and it is there stated that Franklin's birds came from between Benares and Calcutta, or between Benares and the Vindhyan Hills, so that the type-locality must be fixed in the United Provinces or Bengal. I cannot see any difference between Bengal, United Provinces, Punjab, and Sind specimens.

Franklinia buchanani (Blyth). "Chīho."

In the more desert portions of Sind the Rufous-fronted Wren-Warbler is common, and I cannot understand how Hume failed to meet with it frequently, for he regarded it as uncommon. It is a bird essentially of desert scrub-jungle, where euphorbias, a few camel-thorn and acacia bushes make up, with tussocks of desert grass, a scanty vegetation. In thicker forest or jungle, or cultivation proper, I never saw it. I found it common throughout Lower Sind and in the ravines of the lower hills, such as the Soorjana.

Doig thought that it bred in the Narra District in April, and Mr. Bell records what he thought was a nest of this species with eggs on 5 April, but according to my experience this bird is still in winter plumage in April and performs a complete moult in May, which is completed by

the third week in June, by which time the organs begin to enlarge, and it breeds in July and August, and this agrees with Barnes' statement for the breeding period. This little Warbler is one of the very few birds which enliven the desert with its pleasing little song. It extends as far west at all events as the Beluchi boundary at the Habb River.

A series give the following measurements :—

♂, wing 51–55·5 ; tail, summer, 53–56 ; tail, winter, 63–70 mm. ♀, wing 47–51 ; tail, summer, 51–60; tail, winter, 68 mm.

Adults undergo a complete moult in May and again in October–November, while the juveniles also undergo a complete moult into winter dress. Iris yellow-brown ; bill brown, flesh-coloured at the base, darker in summer ; legs pale flesh.

Sind birds are in no way separable from those from the Deccan and Bengal.

Laticilla burnesi (Blyth).

Burnes' Grass-Warbler is confined to the Indus and canal areas where thick jungle exists ; here it is locally common and resident, and outside this terrain it is not met with. It is found from the northern frontier right down, at any rate, as far as the Jerruck division. It is one of the most skulking of birds, only equalled by Cetti's Warbler, and during the day little or nothing is usually to be seen of it ; just after daybreak, however, and just before sunset, it comes out of its thick retreat on to the outside of a bush, and creeps about, singing cheerily at intervals, only to dive into thick cover at once on being disturbed. It is a bird of the "khan" grass (*Saccarhum arundinaceum*), which in places presents an unbroken sea of grass, or where much of this grass is intermixed with the two acacias or tamarisk ; so that, in addition to its skulking habits, it is very difficult to observe on account of the thickness of the cover and restriction of one's view.

Doig found it breeding in the E. Narra District on 13 March, and has given a full description of its nest (S. F.

viii. p. 373), while he found eggs as late as July, and says it breeds again in September, so that the nest season is a long one. Mr. Bell, who has given me many notes on its nesting, has seen it building as early as the middle of February. He says the nests (and he has found a good many) are nearly always built into a grass clump almost on the ground and are well hidden; the birds always seem to select a clump which is on the edge of a small clearing in the forest. The nests are untidy outside but neat enough inside, and are composed of "khan" grass down with fine grasses admixed with a few tamarisk twigs, and lined with down, fine grass, tamarisk seeds, and sometimes a feather or two of Partridge; the female does the building. The bird sits close, skulking off into thick cover on being disturbed, whence it soon returns, and starts chattering at the intruder. They feed mostly in the thick cover they frequent, occasionally on the ground, turning over leaves and searching nooks and crannies for insects, when their actions resemble those of Babblers. The song of the male is very loud for the size of the bird, and reminded me much of that of the Hedge-Accentor; the female has a chattering note.

Sind birds are topotypical; from outside Sind and Punjab I have seen no specimens.

[**Chætornis locustelloides** (Blyth).

In December 1919, I flushed in some high "surpat" grass in the Karachi Sewage Farm a bird which I am as certain as I can be was a Bristle-faced Grass-Warbler. It kept settling quite out of sight at the bottom of the grass, which here was considerably higher than my head; consequently I had ultimately to shoot it on the wing, and unfortunately never retrieved it. This is not an unlikely bird to occur in the "khan" grass-jungle of Upper Sind, but to Karachi it must have been a straggler.]

Hippolais rama (Sykes).

Except in the desert portions of the province, Sykes' Tree-Warbler is common, especially in the Indus Valley; it is

perhaps a resident or possibly some are summer visitors, and certainly I think visitors from farther north come to Sind in the cold weather, at which season it may be found in more desert places where a little cultivation and tree growth exists, as round Karachi, but where it does not breed. My only reason for thinking that it is a summer visitor is that I was in its breeding-ground in winter and failed to see a single one, and it did not strike me as being very common, though not rare, anywhere in winter.

Doig first recorded the breeding of this bird in the E. Narra District; he found the first nest in March 1879, and subsequently discovered many nests and obtained parent birds. The nests were in dense-foliaged pollarded tamarisks, well hidden in the centre of the clumps and composed of sedge, lined with fine grass and vegetable down. The normal clutch was four. Mr. Bell has sent me some excellent notes on the nesting of this bird. He says it is plentiful all down the Indus in the tamarisk-jungles, and the birds may be heard singing "all over the place"—Sadnani Forest, Mari Forest (north of Hyderabad Dist.), and Ketishah Forest (north of Sukkur) are places specially mentioned. Fresh eggs may be looked for in the last week of April and first week of May. The nests are mostly situated in tamarisks, pollarded or not, 6 inches to 7 feet from the ground, though twice he found nests in grass clumps in a "khan" grass-jungle. When in tamarisk, the nest is usually well hidden in the thick, or "camouflaged," if exposed, by a litter of twigs round it, and is made of tamarisk twigs and fibre, often woven in silky threads, lined with feathers or hair and fine grass and grass-down; one nest in grass was composed entirely of grass-down, another of grass-fibre. The whole nest forms a slightly built, deep cup; the cup is 30–40 mm. deep, internal diameter about 50 mm., external about 80 mm.

Barnes records eggs taken "by a friend" from near Karachi; I searched in vain for any evidence of its breeding there at the present day. In the districts where it does not breed it may be looked for from mid-August onwards in small numbers, and it leaves again early in April. During

the cold weather I have usually found it creeping about in "babools" or leafless caper, feeding in a Phylloscopine fashion, and, like *Ph. tristis*, it often flies out from the extremity of a bough to take insects on the wing.

I am unable to recognize *H. obsoleta* Severtz., which Oates admitted to the 'Fauna' on the ground that a bird was obtained in Sind (according to Seebohm). I have examined a large series of *rama*, and none of the distinctions given in the 'Fauna' between this and *obsoleta* hold good; some of my specimens should thus be *obsoleta* on one character and *rama* on the other two or *vice versa*, and the coloration of the upper parts varies also individually and very much according to wear.

Nor can I admit that *H. pallida* has any place in the Sind or Indian Fauna. Hume at first recorded that he had received this bird from Sehwan, but later (S. F. ix. p. 232) thought he was mistaken. There are two specimens from Sehwan in the British Museum, and both are *rama*; nor are there any specimens of *pallida* there from Sind or India. Dresser says he had seen a bird from Sind, and Barnes, copying Murray (who obviously did not know the Warblers), called it a winter visitor.

I have been unable to trace this species (as *H. pallida elaica*) farther east than Bampur in Persian Beluchistan, where Blanford obtained it in April, all other specimens purporting to be this species from farther east which I have seen, being in fact *H. rama*, which itself extends westward at least as far as Shiraz.

17 males, Sind and Punjab, measure: wing 61·5–65; tail 54–57 mm.

5 females, Sind and Punjab, measure: wing 60–62; tail 52–57 mm.

Wing formula $2=\frac{7}{8}$ or $\frac{8}{9}$, very rarely $\frac{6}{7}$; sixth primary emarginate.

In *elaica*: wing (male) 65–68 mm.; $2=\frac{6}{7}$; sixth primary not, or only very slightly, emarginate.

In *rama* the first primary falls short of wing-tip by 27·5–34·5 mm.; the second primary falls short of wing-tip by

10·5–12·5 mm. The first primary exceeds the primary-coverts by 5–10, mostly 7–9 mm.

Birds shot in February, March, and April showed no signs of any spring moult.

Hippolais scita (Evers.) = *H. caligata* auct.

The records of this bird are not very satisfactory. Butler in 1878 said it occurred in the neighbourhood of Hyderabad and Karachi, and Murray says he obtained one at Jhimpir in November. At the time these authors wrote the Warblers were much mixed up, and identifications made then cannot always be relied upon. There are no Sind specimens of this bird in the British Museum, but Murray's bird is there, and it is undoubtedly a specimen of *H. rama*. Butler evidently was not sure about these Warblers, as there is in the British Museum an example of this species obtained by him at Deesa, in Rajputana, labelled *rama* by him.

Mr. Whistler informs me that the Booted Tree-Warbler is a passage migrant in the Lower Punjab, and its migration route, like those of some other species, may not pass through Sind; however, I think this unlikely, as there are undoubted specimens in the British Museum from Kelat on spring passage. Although on the look out for it always in Lower Sind, I failed to meet with it in two and a half years' close search.

H. languida occurs in Beluchistan, but has not so far been recorded in Sind.

Sylvia communis icterops Ménétr.

The only previous record of the Eastern Common Whitethroat is that of Butler, who stated that his collector obtained a specimen at Kotri or Karachi. This bird is a fairly common autumn passage migrant in the first days of September (1st and 5th), and are most numerous about the third week of the month; last seen 9 October. During its halt it is an exceedingly skulking bird, and unlike its lesser relative (*affinis*), does not affect trees, but is usually found in cultivation such as "brinjals" etc., or acacia bushes in the vicinity; or, if the monsoon has brought rain and

the desert bushes have sprouted into life, there in the thickest "kandi" bushes this bird may be found and a glimpse obtained as it flashes out, and in wet years more are induced to halt than in dry years.

This is one of those species which pass through Lower Punjab and Sind east to Mt. Aboo, and take the Arabian route to reach the winter quarters (Yemen, Sept.). All my specimens are very typical *icterops*, with darker greyer brown upper parts than the European bird has.

Sylvia hortensis crassirostris Cretzsch.

The Eastern Orphean Warbler is not very uncommon, and is generally distributed wherever leafy trees, especially babools, are found : and consequently, I think, in very dry years, when most trees are not in good leaf, it is scarcer in Sind as a whole : at least I noticed it to be far less common in 1918–19 when the monsoon failed. Even in desert scrub-jungle it may sometimes be seen creeping about in the leafless caper bushes. The earliest I have seen it is 6 August, though most come perhaps in September, and the latest was noted on 14 April : I could detect no through-passage. A shy, skulking bird, it keeps pretty well to thick foliage and is an adept at concealment.

8 males : wing 80–83 ; bill from base 20–22 mm.

8 females : „ 77·5–81 ; „ „ 20–21·5 „

The crown in the female is never so black as in the male, being more of a dark slate-colour. The juvenile moults the body-feathers, always the central pair, sometimes others of the tail-feathers, all the coverts except the primary series, and not uncommonly (three specimens) the three or four outer primaries and inner secondaries. The markings on the juvenile tail are less sharply defined black and white than in the adult.

Sylvia nana nana (H. & E.).

This little bird is well named the Desert-Warbler, as it is found in such barren spots as no other self-respecting *Sylvia* would deign to haunt. In anything like thick scrub

one very seldom sees it; away out on the wind-swept, sun-scorched, sandy plains, where here and there a small caper "kirru" bush or some few scattered insignificant desert plants struggle for existence, is the home of this little bird (and of little else save *Allœmon*), which may be seen creeping about, making use of all the scanty cover it can and seldom showing in the open, or running round on the sand under the overhanging stems, investigating every twig, nook, and cranny, looking for all the world like some desert mouse. Nor is it confined to the desert plain, as I have found it equally at home in the *Sueda* bushes on the mud-flats above average high-water mark and also up in the dreary limestone hills of the Khirthar at 1800 ft., where Day also noted it at 3000 ft. Where found it is not rare, but also it cannot be said to be very common. Hume called it one of the very commonest birds in the more barren portions of Upper Sind, but it may well be so without being numerically abundant, and such a statement is apt to give rather an exaggerated view of its status; in my experience two or three in an afternoon's trek in suitable country is an average number. It is a very difficult bird to flush from the larger bushes, and when on the wing, its rufous tail at once catches the eye ere it dives in among the roots of the next bush.

The Desert-Warbler is a winter visitor to Sind; the earliest date on which I have seen it is 15 September, and the latest 2 March, and these dates probably do roughly represent its times of arrival and departure. Doig (S. F. ix. p. 278) gave a list of birds found breeding, or thought to breed, in the E. Narra District, and amongst them is "*S. nana* . . . . September"; on p. 280 he adds: "on November 13th, while visiting the Allah Bund in the Rann of Cutch, I found the young of this species just able to fly." This is all the evidence he has published about the breeding of this Warbler in Sind; what his remark "September" refers to is not clear, but I think he meant that, finding young on the wing in November, he deduced that it bred in September. However, I am sure that Doig

was misled in some way over his observation; I have secured birds in October and November and seen plenty. Those I got showed no sign of recent breeding or having been recently bred; in fact, they were in the slightly worn winter plumage common to all *Sylvia* at that time of year and their organs were quite small; nor have I ever seen it in the hot weather, though I have scoured suitable areas of desert in every month. I can therefore confidently assert that this Warbler is but a non-breeding visitor to Sind, a conclusion which Butler (who worked with Doig) also came to.

Ten skins, October to February: ♂, wing 58–60; ♀, 54·5–57·5 mm. Iris pale gold; legs and toes straw-yellow; bill brown above, yellowish below. Wear makes the upper parts less isabelline and more greyish.

Sylvia althæa Hume.

I did not meet with Hume's Whitethroat in Sind, and Hume never specifically stated that he met with it there. At the time of his tour (1872) he had not separated it, though he recognized that three sizes of Whitethroat existed in the plains in winter. In 1878, in reviewing again his Whitethroats, he separated this species and said it was a rare bird, and that he only had five specimens in his collection, and none of these was from Sind. The next year, however, in an editorial comment on Butler's paper in 'Stray Feathers,' he says that *althæa* should be admitted to the Sind fauna. There are no specimens in the British Museum from Sind.

This species breeds in north Beluchistan, and occurs sparingly in the plains of the Punjab, and so should occur also in our province.

Sylvia curruca affinis Blyth.

The Indian Lesser Whitethroat is one of the commonest of the smaller migrants which visit Sind in winter. Everywhere in the forest area it is abundant, and almost every leafy acacia "babool" seems to hold one. In the more desert parts it is naturally scarcer, and its distribution there may be said to be roughly in proportion to the number of acacias. It is

not a bird of scrub-jungle, being replaced there by *minula*, and does not care for low bushes. I have nearly always found it searching for insects pretty high up in trees in a Phylloscopine way, and it is an adept at concealment. It arrives in Lower Sind about the third week in September and soon becomes common; it leaves again early in April; the last was seen on the 14th. Its call note reminded me of that of the Blue Tit.

9 males measure: wing 64–70; tail 56–62; bill at base 12–13·5 mm.

5 females measure: wing 61·5–67; tail 55–61; bill at base 11–13 mm.

The second primary is constantly between the sixth and seventh in length. Spring moult takes place in February and March, and involves the body-feathers, inner two or three secondaries and their coverts, some median and lesser coverts, and the central pair of tail-feathers; sometimes the two central pairs of tail-feathers or the outer pair are also moulted, and in one specimen practically the whole wing, including nearly all the flight-feathers, had been renewed.

Sylvia curruca minula Hume.

Hume's Lesser Whitethroat is not uncommon throughout Sind, but affects, as also noted by Brooks, quite different country from that in which *affinis* is so common—that is, almost desert country, where a few stunted, bare bushes of acacia, camel-thorn, etc., mixed with the more frequent euphorbias, comprise a sort of scanty scrub-jungle; out of this type of country I never met with it, though this sort of habitat may border on cultivation.

The earliest I have seen it is 13 October, and it appears to depart in March. This bird moults in February and March its body plumage, central tail-feathers, inner secondaries and their coverts, but the new dress does not differ from that of fresh autumn. The wing formula is very constant, 2 is between 7 and 8, occasionally equal to 7 or 8. A large series give the following measurements:—♂, wing 60–64; tail 53–56; bill 11–12 mm. ♀ as ♂.

Phylloscopus collybita tristis Blyth.

The Siberian Chiffchaff is an exceedingly common winter visitor throughout the province wherever trees in leaf or cultivation exist; in the drier scrub-jungle it is scarce. Within these limits it may be said to be quite the commonest Warbler and one of the commonest small birds. Few forms of vegetation come amiss, but it is particularly partial to cotton bushes, "babools," tamarisk, "brinjals," red pepper, and the edges of lucerne fields, while I have seen it busily catching flies out in reed-beds on the Manchar Lake over a mile from land. Besides being met with singly, little parties up to half-a-dozen may be seen, while hedges along the side of a lucerne field may be full of them working to and from the crops.

These birds arrive in the first week of October, and most of them have gone by the last week in March; the last seen in Lower Sind was on 4 April. My specimens, together with those obtained in the Punjab by Mr. H. Whistler, form a very large series, obtained in practically every week from mid-October to mid-April. The following are the measurements:—♂, wing 61–64·5; tail 51–56 mm. ♀, wing 53·5–60; tail 45–52 mm. In about half the second primary equals the eighth, and in about half it is between the seventh and eighth; exceptionally it equals the seventh or between the eighth and ninth. The first primary exceeds the primary-coverts by 6–9 mm. (*cf.* Pract. Hdbk. Brit. Birds, p. 303).

The spring moult (end of January to mid-March) involves the body plumage, innermost secondaries and the adjacent coverts, and usually the central pair of tail-feathers. I find no evidence whatever of a complete moult of the wings and tail (*cf. tom. cit.* pp. 299, 303).

Phylloscopus collybita sindianus Brooks.

In 1879 Brooks described (S. F. viii. pp. 467–8) this Chiffchaff from specimens he obtained at Sukkur in north Sind. Since that date there there have been no further records of this little bird in India. Brooks, who evidently had an extraordinarily good ear for birds' notes, first spotted his new

Phylloscopus by its call note being different from that of the familiar *tristis* ; he describes it as a loud, clear shrill "tis-yip" ; he found it fairly common in tamarisk-jungle, 10 to 15 feet high, both at Sukkur and on the canal at Sehwan, which communicates with Manchar Lake. Mr. Bell informs me that he has found *sindianus* common in Upper Sind round Larkhana, and from Sukkur north to the frontier in tamarisk and other trees, and he also noted a difference in the call note from that of *tristis*.

I met with the Sind Willow-Warbler in December 1918 at Jamrao Head, where the Jamrao Canal takes off from the E. Narra. Here the surrounding jungle is liable to inundation, and tamarisk- and acacia-trees grow luxuriantly. Early in the morning, before the dew is off the tall tamarisks, I found this *Phylloscopus* hunting in small parties of two or three birds in a very active and lively manner ; as soon as the day began to warm up and the dew was absorbed, they appeared to affect more the shady acacias in the vicinity. I was unable to hear its notes, and I could detect no difference in habits to *tristis*, except that I never saw this bird fly-catching or affecting herbage by water as *tristis* often does. It was, I think, the commonest of its tribe at Jamrao, but one could obtain it, *neglectus* and *tristis* in the same tree, though the latter was comparatively scarce. At Sukkur in a similar sort of place—tamarisks in damp ground (indeed the precise locality in which Brooks discovered it !)—I also met with it. In Lower Sind I never found it, and it looks as if it was confined in winter to the high tamarisk-jungles which are more frequent in Upper and Central Sind. Elsewhere in India it has so far not been met with, though I have already recorded it from Mesopotamia (J. B. N. H. S. xxviii. 1922, p. 385). It is apparently a winter visitor to Sind.

To Brooks's excellent original description I have little to add. I obtained a fair series (eleven) in December ; the absence of any greenish tinge on the edges of wings, tail, and on the upper parts, and the paler yellow of the under wing-coverts and axillaries are distinctive characters ; also it is on an average a trifle smaller than *tristis*. The wings measure :

♂, 57·5–64·5; ♀, 53–57 mm.: tail: ♂, 47–55; ♀, 46–55 mm. Also the wing formula is slightly different—the second primary is equal to the ninth or tenth or is between these two, occasionally between the eighth and ninth. Brooks laid stress on the shape and length of the first primary; this varies in both *sindianus* and *tristis*, but in *sindianus* on the average it is longer, it exceeds the primary-coverts by 8·5–10·5 mm. (in *tristis* 6–9 mm.). In this and the wing formula, and somewhat in the coloration, this bird resembles *neglectus*, but it is altogether longer in wing and tail, the measurements not overlapping.

Phylloscopus neglectus neglectus Hume.

Hume found the Plain Willow-Wren "not uncommon along the banks of the Indus and throughout Upper Sind wherever thick clumps of 'babool' (*Acacia*) are met with." He found it a very silent and skulking little bird. Brooks, a few years later, also found it not uncommon at Sukkur in tamarisk-jungle by the river, and met with it again in "babool" jungle at Sehwan; he thought that its notes and actions were more like those of the Indian Lesser Whitethroat (*Sylvia c. affinis*) than Phylloscopine. Mr. Bell found this Willow-Wren "everywhere" in central Sind, chiefly in tamarisk-jungle, and he says it has two notes—an ordinary feeding call note "twissa-twissa," uttered quickly at intervals, and an alarm note "tshak-tshak."

I found it in December to be the commonest *Phylloscopus* at Sukkur, frequenting close-growing tamarisks of no great age situated in damp ground by backwaters of the Indus; in dry situations I found none. At Jamrao Head, on the E. Narra, I also found it fairly common in exactly similar situations, and also in "babools" growing in the vicinity of tamarisk-jungle. I unfortunately could not hear its notes, but can confirm its restless activity, and it appeared to me quite Phylloscopine in its habits. I met with it singly or in twos or threes in the same tree busily feeding, and sometimes *Phylloscopus sindianus* might be associated with it. Blanford obtained one at the Gaj River at the foot of the Khirthar,

but in Lower Sind I never met with it for certain, though I thought I once caught a glimpse of one in a small tamarisk-jungle near Karachi; it probably, however, does occur wherever damp tamarisk-jungle is found, but no doubt a large tract of Lower Sind is unsuited to its requirements.

I have no information concerning its times of arrival and departure. Mr. Bell says those he obtained in February showed "unmistakable preparatory signs of breeding," by which I suppose he means that the sexual organs were then beginning to enlarge, which fact is quite normal with all winter visitors to Sind, as I have over and over again verified. From its small size, short tail, and earth-grey colour this bird is unmistakable in the field.

Twelve specimens measure:—♂, wing 51–52·5; tail 40–42. ♀, wing 47·5–50·5; tail 38–42 mm.

Second primary equals ninth or tenth or between these; first primary exceeds primary-coverts by 8–10·5 mm.

Phylloscopus nitidus nitidus Blyth.

The Green Willow-Warbler is a not very common autumn passage migrant; it arrives at the end of the first week in September, and from then a few may be met with until mid-October, and I saw an odd one as late as 9 November. So far as I could make out, it invariably haunts leafy trees, usually "babools," and I never saw it in low bushes and crops, such as *P. c. tristis* frequents. On spring passage I never saw it. This is one of those species whose lines of migration, like those of the Pastor and Black-headed Bunting, have a considerable west and east trend more than north and south. It breeds as far west as the Caucasus, but apparently does not winter in countries lying to the south; nor does it, I think, winter in Sind.

It is worth noting that there are no records of either *Phylloscopus griseolus* or *Phylloscopus humei* in Sind. The former certainly breeds in northern Beluchistan, and must surely pass through Upper Sind on passage; the latter is a common winter visitor to the Lower Punjab, and might be expected to occur in Upper Sind. Hume (S. F. i. p. 197) says of

Ph. occipitalis that he had never obtained it in Sind, but that Capt. Malden had shot it at Jacobabad ; it is not clear that Hume saw Malden's specimen, and I have grave doubts as to the correct determination of this and other birds which Malden informed Hume he had procured in Sind. Mr. Whistler did not meet with this species in the Lower Punjab.

The lines of migration of *viridanus* would seem to lie to the east of Sind.

Of a large series of *nitidus* the measurements are as follows:—♂, wing 62–68 ; tail 45–51. ♀, wing 60–62·5 ; tail 45–46 mm. Second primary between sixth and seventh or equal to the seventh.

Scotocerca inquieta striata (Brooks).

Although Dr. Day, when with Hume, only got the Streaked Scrub-Warbler at Meera (3500 ft.) under Dharyaro, the highest peak of the Khirthar Range, there can be no doubt that it occurs in suitable places throughout the range, and is of course resident. In the lesser hills of Sind, such as the Soorjana and Laki groups, I failed to find this little Warbler, and as Dr. Day did not meet with it under 3500 ft., it probably only occurs in the highest parts of the range ; he obtained his specimens in stunted acacias on 16 January. In other parts where I have met this species it frequents bare rocky hill-slopes, where a few plants or small bushes afford it hunting-ground for its food ; it is exceedingly active and a very quick runner. It is found throughout suitable hills in Beluchistan, N. W. Frontier Province, and the Salt Range.

Cettia cetti cettioides Hume.

Hume found the Eastern Cetti's Warbler common in one or two of the "dhands" of the Larkhana District, notably at Dost Allee. He describes it as an inveterate skulker, haunting tamarisk and tiger-grass where these stand thick and dense in swamp and water ; never flying or showing up, it creeps about in very thick cover, from which he found it was impossible to dislodge it. It was long before I met this species

myself in Sind: none of the various "dhands" I visited seemed to be suited to its requirements in the way of dense cover; ultimately I succeeded in finding it on the great Manchar Lake: I was beating out some high, thick rushes on the edge of a drying-up ditch for whatever it might contain, when I flushed a Cetti's Warbler. It soon settled again in the rush, and I was able to watch it creeping about or, rather, catch glimpses of it before I finally secured it: and it appeared to me to be less skulking than I anticipated—less so than *Locustella straminea*, which was in the same rushy margin. The very dark brown colour and the long, rounded tail are the diagnostic features in the field. I have no doubt that in suitable places on the Manchar it is common, but I do not think it is to be found in ordinary reed-beds, which prevail in the part I was in. My specimen was obtained on 20 December, and Hume got his about 8 January; it is probably a winter visitor.

A series from Sind (topotypes) measure:—Wings: ♂, 68·5–73; ♀, 60–63·5 mm.

Suya crinigera striatula (Hume).

Resident in the Khirthar Range, the Long-tailed Hill-Warbler is apparently not very uncommon in suitable places, though probably local. Thus both Day and Hume failed to find it; Blanford obtained the type at Kand, a border post in the hills about 40 miles north of Karachi, and got others at Mandtal, Dharyaro, and Sita Nai—all in the Larkhana District. It was long before I came across it, and then only a single bird in the pass of the Soorjana close to the pool. I searched there and the Laki Hills in vain for it, but at the time everything was very dried up, and probably if the hill-grass fails, it scatters out to any suitable cover it may find.

Hume was so struck by the distinctness of the Sind bird that he made it not only a new species, but actually created for it a new genus!—a procedure, adopted by so conservative an ornithologist, which should be instructive to those who even at this day scout at geographical races, for the Sind bird is only a race of the Himalayan one. The type and five others

examined differ from *S. c. crinigera* in the same (winter) plumage in having the ground-colour above paler, less warm brown, more grey-brown, and the light streaks also paler; edges of wings less deep rufous; under tail-coverts and flanks paler. Other examples of *striatula* examined are from Kelat, N.W. Frontier Province, and Salt Range.

Prinia gracilis lepida (Blyth).

The Streaked Wren-Warbler is locally common throughout the province; it particularly affects tamarisk-jungle, and is not uncommon in reeds and thick herbage round jheels, in "khan" grass-jungle, and I have also seen it in cotton-fields: it is by no means a bird of dry situations, such as desert scrub-jungle etc., where *P. inornata* may be found.

The breeding season is very prolonged; Doig gives it as March to September, and this is, I think, about correct. Mr. Bell says that he has found nests by 25 March, and by the end of April, while others yet have eggs, young may be on the wing, which I can also confirm. Several broods would seem to be reared, as he has found nests as late as 2 August with eggs. Doig gives the normal clutch as four, and Mr. Bell records up to five eggs in a nest: he notes that the nests of well-known ovoid shape are usually situated in the bushier ends of tamarisk boughs, but sometimes in "khan" grass clumps in jungle. The nests are composed of fine grass and fibre interwoven with cobwebs, vegetable-down such as that of "khan," poplar, tamarisk, with spiders' cocoons worked in and lined with similar vegetable downs. The nests measure 100 × 75 mm. externally. Besides the shrill twittering so often heard, these birds make a snapping noise with the bill.

Sind birds are topotypical, and measure:—♂, wing 43–45; tail (winter) 68–71; tail (summer) 59–61 mm. ♀, wing 40·5–43; tail (winter) 68–71; tail (summer) 54–56 mm.

The juvenile has a complete moult, and the spring moult in February and March involves body-feathers, tertials, and tail, but apparently not the rest of the wings. I think it

likely that this bird breeds in the year of hatching, as is the case with *Uroloncha malabarica* and perhaps *Prinia flaviventris*, *Laticilla burnesi*, etc., as I obtained a bird on 2 July in juvenile plumage with testes considerably enlarged; it would be interesting to know, if they breed, whether they moult first into adult dress. It is possible that the late nestings of species with a prolonged breeding season refer to early hatched birds; this is a point which requires further study.

Prinia flaviventris sindiana Ticeh.

The Yellow-vented Wren-Warbler is a very local bird in Sind: it is essentially a bird of tamarisk and "khan" grass-jungle, but does not occur apparently everywhere where these conditions obtain. Doig found it tolerably common along the E. Narra Canal, keeping to very thick jungle and not easily seen unless looked for. Here he found nests in the middle of May and at the same time well-grown young on the wing; the normal clutch was four eggs. He gives the nesting season as March, June, and September. Butler met with it in one strip of tamarisk and "khan" grass jungle near Sukkur in February. Almost in the same place—in the Ketishah Forest—Mr. Bell came across it breeding at the end of April; he says, in the notes he has given me, that it nests either in clumps of "khan" grass or in the thicker boughs of tamarisk three to five feet from the ground. The nest, shaped rather like that of the Sun-bird but with the opening right at the top, is composed of thin grass roots and vegetable down and lined with fine grasses; it measures on the outside $6 \times 2\frac{3}{4}$ inches. The alarm note is a plaintive "twee," like that of *P. socialis*; the call note, uttered from the tip of a bare twig, consists of four or five silvery notes uttered in quick succession, and may be syllablized as "twuddle-li-li"—quite unlike that of *P. lepida*. Although I was in quite suitable country on the E. Narra and elsewhere, including a forest close to the Ketishah Forest, I failed to meet with this bird.

In the Bull. B. O. C. xl. 1920, p. 157, I separated the Sind

bird from the typical race from north Bengal, on account of its longer bill and duller green and yellow coloration. The type is one of Butler's Sukkur birds and is in the British Museum; this race extends to the N.W. Frontier Province.

Prinia inornata inornata (Sykes).

The Indian Wren-Warbler is common enough in cultivation and thicker jungle, such as grass and "babool," rather less so in desert scrub-jungle. I never saw it in reed-beds, where *P. lepida* prevails, though I have found it in tamarisk-jungle a haunt favoured by the latter species.

It is well distributed throughout the province, and in Lower Sind, at any rate, it breeds early—at the end of March,—as I have seen young on the wing on 27 April, and young in the nest a fortnight earlier than this; nests may be found into September; one pair I had under observation brought forth three broods, a fresh nest being built each time, and it built, but deserted, a fourth nest. In Sind three types of nest—the globular, canopied, and the long purse—are found; the last always in high grass, was by far the commonest of the three at Karachi, where these birds much favoured the "surpat" grass in the Sewage Farm. These purse-shaped nests were rather longer than the nine inches given in Hume's 'Nest and Eggs,' and the entrance quite at the top; in fact, they resembled much the nests of *Cisticola cursitans* in shape and size, but were more stoutly built of grasses, with cobweb and vegetable-down woven in, and attached to the nearest stems and quite hidden from sight in the clump. Four eggs was the invariable number.

The summer and winter plumage of this bird are so different that it is not surprising that the older writers considered them to represent two species, until Brooks pointed out that all breeding birds were *inornata* and all winter ones *longicaudatus*, and this, on the whole, is correct: yet it is not absolutely so, as I have obtained on 27 April, in full winter dress just beginning to moult, a bird which was feeding young.

This species moults completely twice a year; the spring moult lasts from March to May, and many, at any rate, breed during the moult—a very unusual thing amongst any birds,—and birds moulting to winter may be found from July to November. The juvenile also has a complete moult during this period. The juvenile tail is about the same length as the adult summer tail, and the colour of the plumage about between the colours of summer and winter of adults. The colour of the bill in the breeding season is not entirely black: the base of the lower mandible is always pale—flesh or grey,—and breeding birds may be met with, even with brown bills.

Summer—seven males measure: wing 47·5–53, tail 55–57. Winter—three males: tail 72–80 mm.

Summer—thirteen females measure: wing 46·5–51, tail 49–57. Winter—five females: tail 69–74 mm.

I cannot separate Sind birds from typical *inornata* from the Deccan. Neither *P. socialis* nor *P. sylvatica* occurs in Sind; a race of the former is found in the Lower Punjab and Mt. Aboo, of the latter in Cutch and Mt. Aboo.

[To be continued.]

XXXI.—*Obituary.*

Robert Elliott Harvey.

We learn with regret of the death of Mr. R. E. Harvey, which took place on the 17th of January last at his home in London, as the result of an attack of angina pectoris. Mr. Harvey was born in 1850, and was therefore 72 years old at the time of his death. He was an old Member of Lloyd's, and only became a member of the Union in 1921. Though interested in birds and ornithology he was not an active worker, and so far as we are aware never published anything in regard to our science.